

WHAT IS CLAIMED IS:

1. A method for preparing an alignment layer surface,
comprising the steps of:

providing a surface on the alignment layer;

5 bombarding the surface with ions; and

introducing reactive gas to the ion beam to saturate
dangling bonds on the surface.

2. The method as recited in claim 1, wherein the
10 alignment layer includes diamond like carbon.

3. The method as recited in claim 1, wherein the step
of introducing reactive gas components includes the step of
introducing nitrogen as the reactive gas.

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4. The method as recited in claim 1, wherein the step
of introducing reactive gas includes the step of introducing
hydrogen as the reactive gas.

5. The method as recited in claim 1, wherein the step of introducing reactive gas includes the step of introducing at least one of oxygen and fluorine as the reactive gas.

5 6. The method as recited in claim 1, wherein the step of introducing reactive gas includes the step of introducing at least one of silane and tetrafluoromethane as the reactive gas.

10 7. The method as recited in claim 1, wherein the step of bombarding the surface with ions includes the step of bombarding the surface with Argon ions and reactive gas ions.

15 8. A method for preparing an alignment layer surface, comprising the steps of:

 providing a surface on the alignment layer;

 bombarding the surface with ions; and

 quenching the surface with a reactive component to

20 saturate dangling bonds on the surface.

9. The method as recited in claim 8, wherein the alignment layer includes diamond like carbon.

10. The method as recited in claim 8, wherein the step
5 of quenching the surface with a reactive component includes the step of quenching the surface with a reactive gas to saturate dangling bonds on the surface.

11. The method as recited in claim 10, wherein the
10 reactive gas includes at least one of hydrogen, nitrogen, carbon dioxide, oxygen and water vapor.

12. The method as recited in claim 8, wherein the step
15 of quenching the surface with a reactive component includes the step of quenching the surface with a reactive liquid to saturate dangling bonds on the surface.

13. The method as recited in claim 12, wherein the
20 reactive liquid includes at least one of alcohol, water, hydrogen peroxide, carbon dioxide-saturated water, and liquid crystal.

14. A method for preparing an alignment layer surface for liquid crystal displays, comprising the steps of:

providing a diamond like carbon surface;

bombarding the surface with ions from an ion beam;

5 saturating dangling bonds on the surface caused by the bombarding step.

15. The method as recited in claim 14, wherein the step of bombarding includes the step of introducing a
10 reactive gas to the ion beam.

16. The method as recited in claim 14, wherein the reactive gas includes at least one of nitrogen, hydrogen, oxygen, fluorine silane and tetrafluoromethane.

15 17. The method as recited in claim 14, wherein the step of bombarding the surface with ions includes the step of bombarding the surface with Argon ions and reactive gas ions.

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18. The method as recited in claim 14, wherein the step of saturating dangling bonds includes the step of quenching the surface with a reactive gas to saturate dangling bonds on the surface.

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19. The method as recited in claim 18, wherein the reactive gas includes at least one of hydrogen, nitrogen, carbon dioxide, oxygen and water vapor.

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20. The method as recited in claim 14, wherein the step of saturating dangling bonds includes the step of quenching the surface with a reactive liquid to saturate dangling bonds on the surface.

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21. The method as recited in claim 20, wherein the reactive liquid includes at least one of alcohol, water, hydrogen peroxide, carbon dioxide-saturated water, and liquid crystal.

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